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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,417	03/10/2004	Gerald Harron	85195-402 ADB	9045
23529	7590	11/02/2005	EXAMINER	
ADE & COMPANY				LUU, AN T
1700-360 MAIN STREET				
WINNIPEG, MB R3C3Z3				
CANADA				
				ART UNIT
				PAPER NUMBER
				2816

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/796,417	HARRON ET AL.	
	Examiner	Art Unit	
	An T. Luu	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 September 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 13 is/are rejected.
- 7) Claim(s) 2-12 and 14-24 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 September 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's Amendment filed on 9-29-05 has been received and entered in the case. The rejections set forth in the previous Office Action are maintained as indicated below.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by the Van Der Valk et al reference (US Patent 5,905,388).

Van Der Valk discloses in figure 5 an apparatus for generating a synthesizer RF signal at a desired output frequency (i.e., output of 27) comprising a high speed reference clock 9 providing an input signal having a series of signal reference edges at a frequency of the reference clock which is higher than the desired output frequency at node (i.e., ADDER 27 adding pulses of three delay lines, duration pulse at its output is bigger than duration pulse at each input pulse); programmable digital delay elements (i.e., delay line coupled to accumulator 20, 23 and 24 in which a number of delay stage is selected, col. 5, line 19-36) arranged to receive the reference edges of the input reference clock and to generate delayed signal edges each at a calculated delay from a respective reference edge (i.e., output of 8 provides to different delay lines); and a signal generating element 27 for receiving delay signal edges and for directly generating the RF signal at its output terminal as required by claim 1. It is noted that RF range is considered to denote frequency above 150kHz and extending up to the infrared range. Column 7,

lines 2-10, indicates that the output signal of Van Der Valk's circuit provides a signal well within RF range. Further, the limitation "wherein the signal generating...from a respective reference edge", last three lines of claim 1, is inherently derived from the above structure since output pulses of 27 have rising and falling edges which is a digital timing determined by the delayed signal edges calculated from a respective reference edge (i.e., edges of signal at output of 27 are determined by edges of delay signals at inputs of 27).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Van Der Valk et al reference (US Patent 5,905,388) in view of the Keller et al reference (US Patent 5,671,227). Van Der Valk discloses all the claimed invention except for teaching a combining circuit comprising a flip-flop as required by the claim. Keller et al discloses in figure 3 a combining circuit 15 comprising a flip-flop 18 as required by the claim. It would have been obvious to one skilled in the art at the time the invention was made to substitute a generic combining circuit 27 in Van Der Valk by the one taught by Keller since a combining circuit is known to be implemented many different ways in the art. A skilled artisan in the art would be motivated to utilize the combining circuit of Keller since this combining circuit will provide a combining output during at a particular moment as specified by a counter.

Response to Arguments

5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The rejection of claim 1 has been revised to reflect amendment of claim.

Allowable Subject Matter

6. Claims 2-4,7-12 are 14-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to disclose an apparatus comprising elements being configured as recited in claims. Specifically, none of the prior art teaches or fairly suggests, among other things, the following limitations:

- The adders/accumulators are arranged to determine the amount of delay implemented by the delay elements on the reference edge as required by claims 2 and 22.
- The programmable digital delay elements comprise high-speed adders/accumulators and a look-up table for providing increments to be added to calculate said delay as required by claim 3.
- Both rising and falling edges of the pulses are generated from rising edges only of the reference edges of the input signal of the reference clock as required by claim 5.
- Both rising and falling edges of the pulses are generated from falling edges only of the reference edges of the input signal of the reference clock as required by claim 6.

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- The programmable digital delay elements have separate controls for producing the rising and falling edges of the output from the same input edge of the reference clock as required by claim 7.
- The programmable digital delay elements are arranged to be varied by altering the input clock signal as required by claim 8.
- The programmable digital delay elements are arranged such that 360 degrees of phase delay of the programmable delay is calibrated to 2^n of the phase accumulator value using a look up table or microprocessor as required by claim 12.
- The flip-flop is arranged to combine the separate rising and falling edge delays to form any desired duty cycle output as required by claim 14.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to An T. Luu whose telephone number is 571-272-1746. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

An T. Luu
10-22-05 *ATL*

Kenneth Wells
Kenneth B. Wells
Primary Examiner